

REMARKS

In response to the Office Action mailed April 5, 2004, Applicant amends his application and requests reconsideration. In this Amendment claims 12 and 20 are cancelled and claims 21-28 are added so that claims 11, 13-19, and 21-28 are now pending.

New claim 21 is derived from original claim 12 and it is apparent that new claims 22-28 are derived from original claims 13-19. Thus, all claims now pending are fully supported by the application as filed.

With regard to the continuing colloquy concerning verbatim agreement between the claim language and the language of the patent application, the amended claims and the newly submitted claims conform clearly to the specification as filed. To the extent there are any minor deviations in exact wording, it is well established in U.S. patent law that there need not be verbatim agreement between a specification and a claim so long as the claim finds support in the application as filed and is so understood by one of skill in the art. Since those tests are clearly met here, no further response to the rejection as to form is required.

Newly added claim 21 replaces claim 12 and is introduced merely for simplicity. Claim 11 is a broader claim than claim 21 because it describes a structure in which there are only first and second different kinds of cells. Claim 21, like claim 12, describes the presence of a third group of cells. Further, each of independent claims 11 and 21 makes clear the structure within respective cells. Within some of the cells the pixels include only a single layer of an organic light-emitting material. Other pixels include only two such layers, and some pixels include three such layers. What was formerly described as the first electrode of the structure is now described as the anode and the other electrodes are described as cathodes. Not only is this language clear and derived from claim 20, it also eliminates an issue that has been a source of discussion with regard to the rejection as to form.

As well known to those of skill in the art, in order to produce light using a structure such as described in the claims, it is necessary for current to flow between a cathode and an anode and for light to escape from the material in which the light is produced. In the described embodiment of the invention, the substrate is transparent as is the anode layer. The cathodes may be metal but are not necessarily metal. In any event, because of the described and claimed structure, light is only emitted by the layer of organic material that is adjacent to the anode. Thus, in pixels including more than one of the layers of organic light-emitting materials, at least one of those layers is inactive because it is sandwiched between two cathodes, not sandwiched between an anode and a cathode.

Claim 11 was the only examined independent claim and has been rejected twice as unpatentable over Shi et al. (U.S. Patent 5,693,962, hereinafter Shi) in view of Forrest et al. (U.S. Patent 5,707,745, hereinafter Forrest). This rejection was also made with respect to claim 12 which is the source of new independent claim 21. This rejection is respectfully traversed as to the claims now pending.

Shi was cited as describing an organic light-emitting diode array producing a number of different colors. Each of the pixels in the array described by Shi includes a single layer of a light-emitting organic material. Thus, no pixel in the Shi structure includes more than one layer of an organic light-emitting material. In order to supply that difference between examined claims 11 and 12 and Shi, reliance was placed on Forrest. Every one of the pixels in Forrest includes three layers of organic light-emitting materials, each material producing light of a different, respective color. Light produced in a pixel remote from a substrate 37 supporting the Forrest structure must pass through all the intervening layers of organic materials in order to escape through the transparent substrate 37. By providing a particular electrode arrangement, that is not present in the claimed invention, Forrest can stimulate each of the layers of the light-emitting material, regardless of the position of the layer in the stack of those materials. Thus, if one of skill in the art were to modify the Shi structure with what is described by Forrest, every one of the pixels in Shi would include multiple layers of organic light-emitting materials so that at least two colors and, as many as three colors, of light could be produced at each pixel. This arrangement is not the claimed invention.

In the invention as defined by claim 11, each first pixel includes only two layers of the light-emitting organic materials and each second pixel includes only one such layer. Further, because only the organic light-emitting material adjacent to the anode, i.e., closest to the substrate, can emit light, light of a single color, the structure is substantially different from anything that could be achieved by modifying the Shi structure with the Forrest structure. For example, in the first pixels of the structure defined in claim 11, light is never emitted from the second layer of organic material because that layer is sandwiched between two cathodes.

In the Office Action, the Examiner repeated the position that it would have been obvious to use Forrest's pixel structure in place of the pixel structure of Shi because it would permit the emission of light of three different colors from the same pixel. That result is not desired nor achieved in the invention, just as the structure that results from the modification of Shi with Forrest is not the structure claimed. While the Examiner may be of the view that the ability to emit all three colors from each pixel is an advantage, that view is not the view of the present patent application. Rather, in the invention, the single color light emitted from

In re Appln. of WERNER HUMBS
Application No. 10/085,619

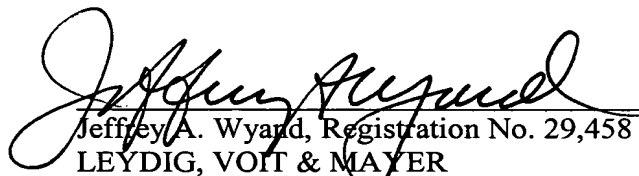
a pixel is not diminished by the necessity of passing through layers of organic materials before being emitted from the display. As described in the patent application, the structure claimed in the present application is produced in a substantially different way from the production of either of the Shi and Forrest structures. As a result, the characteristics of the invention as claimed are different from those of either of the displays of Shi and Forrest. It is inappropriate in determining patentability to attribute to the invention an objective that might be achieved by some combination of Shi and Forrest but that is not an objective sought or achieved in the invention.

For each of these reasons, no combination of Shi and Forrest can suggest the invention as defined by the claims now pending.

While claims 13 and 18 were rejected on different grounds, it is apparent that those rejections depend for their propriety on the rejection of independent claim 11 as unpatentable over Shi in view of Forrest. Since that fundamental rejection cannot be properly maintained, the rejections of all dependent claims fail with the failure of the rejection of the claim 11 that is presented here.

Reconsideration and allowance of all claims now pending is earnestly solicited.

Respectfully submitted,


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